Development of Anti-COVID RNAi Therapeutics Using Human iPSC-Derived Alveolar Epithelial Cells

Grant Award Details

Development of Anti-COVID RNAi Therapeutics Using Human iPSC-Derived Alveolar Epithelial Cells

Grant Type: Discovery Research Projects

Grant Number: DISC1COVID19-12047

Project Objective: Synthesis of a Universal Endosomal Escape Domain (uEED) to optimize Anti-COVID siRNA delivery into human iPSC-derived Alveloar Epithelial Cells (AECs).

Investigator:

Name:	Steve Dowdy
Institution:	University of California, San Diego
Type:	PI

Disease Focus: COVID-19, Infectious Disease

Human Stem Cell Use: iPS Cell

Award Value: $150,000

Status: Active

Grant Application Details

Application Title: Development of Anti-COVID RNAi Therapeutics Using Human iPSC-Derived Alveolar Epithelial Cells

Public Abstract:	**Research Objective** To optimize a new approach to deliver Anti-COVID siRNAs into human iPSC-derived lung cells that can selectively kill the COVID virus **Impact** Our proposal, if successful, will solve the siRNA delivery problem and rapidly open the door to Anti-COVID siRNA therapeutics. **Major Proposed Activities** • Complete synthesis of a new delivery device called a Universal Endosomal Escape Domain (uEED) • Generate a panel of human iPSC-derived lung cells • Test and optimize the ability of the uEED to deliver Anti-COVID siRNAs into human iPSC-derived lung cells • Rapidly expand the uEED technology to delivery of Anti-COVID siRNAs in a broader panel of human iPSC-derived lung cells
Statement of Benefit to California:	COVID-19 is a deadly health hazard for all Californians, Americans and the world. siRNA-induced RNAi responses are highly selective genetic medicines that have great potential to treat COVID patients and to prophylactically inoculate Californians to prevent their infection. However, due to a delivery problem, we cannot yet deliver siRNAs into lung cells of patients. Our proposal, if successful, will solve the siRNA delivery problem and rapidly open the door to Anti-COVID siRNA therapeutics.

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